OTT's Office of Technology Utilization

Creating market acceptance for alternative fuels and advanced transportation technologies

Transportation

FOR THE 21ST CENTURY

ENERGY EFFICIENCY AND RENEWABLE ENERGY

OFFICE OF TRANSPORTATION TECHNOLOGIES

OTT's Office of Technology Utilization

In the United States, the transportation sector remains heavily dependent on petroleum for more than 95 percent of its energy with highway vehicles accounting for three-quarters of all transportation energy use. By the year 2020, petroleum consumption in the transportation sector is projected to increase by 44 percent to 17.3 million barrels per day (MBPD). The successful introduction and commercialization of alternative fuel vehicles (AFVs) and advanced technology with significantly improved fuel economy are critical to achieving reductions in oil consumption and greenhouse gas emissions over the next two decades. While the research and development work being performed under the auspices of the Department of Energy's (DOE) Office of Transportation Technologies (OTT) is leading to significant improvements in vehicular technology, affecting change in people's driving habits and encouraging acceptance of these new technologies requires a program of public outreach and education. Drivers, long accustomed to gasoline and diesel vehicles, need to be educated about the benefits of using alternative fuels, while at the same time, refueling infrastructure must be improved. The goal of the Office of Technology Utilization (OTU) is to put DOE and industry-developed alternative fuel and advanced vehicle technologies to work for energy security and clean air by creating and supporting initiatives that get those technologies out of the lab and onto the road.

OTU is working to facilitate this transition to the more efficient and cleaner vehicles of the not-so-distant future. Through implementation of its various programs, OTU focuses on forging partnerships with local and state governments, performing tests and evaluations of vehicular technologies, and collecting and disseminating data. These activities are designed to pave the way for market acceptance of new vehicle technologies, and to stimulate initial market demand for alternative fuel and advanced technology vehicles. Many of OTU's activities are required by the Energy Policy Act of 1992 (EPACT), which, among other directives, mandates acquisition of AFVs by Federal, state, and alternative fuel provider fleets. EPACT also identified the need for a program of outreach and public education to promote the use of non-petroleum, domestically-produced fuels. Some of OTU's key programs are described below:

Clean Cities – putting AFVs on the road and creating infrastructure

It was anticipated that the early stages of AFV deployment would be difficult. Without adequate infrastructure, it was unlikely that potential users would buy an AFV, and without a ready market, fuel companies would be reluctant to invest in fueling stations and other infrastructure. Clean Cities, the centerpiece of OTU's AFV deployment strategy is overcoming these obstacles by forming partnerships within volunteer communities. These partnerships bring together local governments, fleet operators, fuel providers, AFV manufacturers, and entrepreneurs to encourage their commitment to AFV acquisition and improvements in infrastructure. Many of these community programs have been linked across regional and state boundaries. Currently, 79 communities around the country have joined the Clean Cities Program, with many more expressing interest.

Fleet programs stimulate the market, and build experience and familiarity

The largest fleet operator in the nation, the Federal Government, is accelerating the use of AFVs by its fleet all across the country. OTU is providing information and guidance to Federal fleets which now operate more than 35,000 natural gas, ethanol, and other alternatively-fueled vehicles. OTU also has responsibility for implementing EPACT fleet requirements for both state and alternative provider fleets that will put 5,000 to 10,000 new AFVs on the road each year.

Field Operations Program – testing and

Energy Efficiency and Renewable Energy's Office of Transportation Technologies (OTT) within the U.S. Department of Energy is charged with reducing America's dependence on petroleum, thereby bolstering the nation's energy security and improving the quality of its air. To meet that goal, OTT enters diverse, cost-shared R&D partnerships with like-minded organizations both public and private, helping develop technologies to a point where industry can commercialize them into marketable products. OTT is organized into four "sub" offices corresponding to major customer areas:

- *The Office of Advanced Automotive Technologies develops technologies that will lead to motor vehicles with greater fuel economy and lower emissions.*
- *The Office of Heavy Vehicle Technologies focuses on improving the efficiency of diesel engines for trucks, while simultaneously reducing emissions.*
- *The Office of Fuels Development is primarily working to reduce the cost of cleaner, domestically-sourced ethanol, a renewable and easy-to-use alternative fuel.*
- ***The Office of Technology Utilization is working to pave the way for market acceptance of new transportation technologies through educational, voluntary, and other practical efforts in partnership with industry stakeholders, local, and state government.***

evaluation data and expertise

Fleet operators and consumers need real-world data about AFVs in order to make sound, long-term purchasing decisions. OTU is recognized for its objective testing and evaluation programs for alternative fuel and advanced technology vehicles, including electric vehicles. In partnership with industry, other government entities, and trade associations, performance, life cycle cost, reliability and emissions of near market-ready advanced technology and alternative fuel vehicles are validated. The information is then made available to engineers, government agencies, manufacturers, fleets, and consumers. Industry partners, such as electric power producers, contribute significant cost-share to the program. Federal and state agencies participate actively through the acquisition of significant numbers of alternative fuel vehicles, a portion of which are used to provide data on real-world use.

Increasing the deployment and availability of alternative fuels and advanced technology vehicles

OTU is responsible for implementing the EPACT requirements mandating the acquisition of alternative fuel vehicles. Those requirements currently apply to Federal agencies, state governments, and alternative fuel providers, such as natural gas utilities. In carrying out this responsibility, OTU prepares and issues needed regulations and provides information and assistance in acquiring and using AFVs and alternative fuels. OTU also collects data, performs analyses, and reports to Congress. OTU works closely with automotive and fuel industry partners, state and local governments, and other Federal agencies to develop crosscutting outreach and demonstration programs that will encourage the use of all types of advanced technology vehicles in both light duty and heavy duty markets.

Analytical efforts expand knowledge of technology and policy options

Extensive analytical and modeling efforts are employed by OTU to explore how alternative fuels and advanced technologies can be introduced into the market, both cost effectively and successfully. The benefits and disadvantages associated with each candidate fuel or technology are compared with each other and with conventional fuels. Each is analyzed in terms of meeting the nation's goals of decreased reliance on imported oil, enhanced energy security, and maximizing environmental benefits. OTU also analyzes how refueling, service, and safety infrastructures need to be updated as alternative fuels become more commonplace.

Student vehicle competitions challenge tomorrow's engineers

OTU has been in the vanguard of fostering our national competitiveness by sponsoring competitions to help identify and encourage young engineering talent. Through the Advanced Vehicle Competitions Program, university students obtain unparalleled automotive engineering experience while demonstrating the performance of critical vehicle technologies. Many students who participate in these vehicle competitions go on to take jobs in the automobile industry. In the largest on-going competition, *FutureTruck*, students from 15 U.S. and Canadian universities are re-engineering full-size sport utility vehicles to achieve significant reductions in greenhouse gas emissions. Past competitions have included the *Ethanol Vehicle Challenge* and *FutureCa*r, which saw the student-modified vehicles achieve significant increases in fuel economy.

Disseminating information to the general public and to stakeholders

OTU disseminates its data and analytical information through diverse media, such as fact sheets, reports, newsletters, educational publications, and demonstration events. OTU maintains the National Alternative Fuels and Clean Cities Hotline (1-800-423-1DOE or 1-800-CCITIES); the Alternative Fuels Data Center, (http://www.afdc.doe.gov), and the Fuel Economy Guide (http://www.fueleconomy.gov), resources where accurate, unbiased information about alternative fuels and advanced technology vehicles can be easily obtained.

For more information on how DOE is helping America remain competitive in the 21st century, please contact:

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